

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

UOZUMI

Serial No.: New Application

Group Art Unit:

Filed: May 30, 2001

Examiner:

For: ANTENNA DEVICE OF INTERROGATOR

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

May 30, 2001

Sir:

Prior to calculation of the filing fee and prior to the examination of this application, please amend the above-identified application as follows:

IN THE CLAIMS:

Please amend the claims as follows. A copy of the marked-up original claims is attached showing the changes as set forth in amended 37 C.F.R. 1.121.

6. (Amended) The antenna device according to claim 2, wherein said switch is a semiconductor switch which is controlled by a control circuit for detecting a deviation of said resonance frequency and controlling said resonance frequency to a predetermined frequency.

Please add the following claim:

-- 10. (Added) The antenna device according to claim 5, wherein said switch is a semiconductor switch which is controlled by a control circuit for detecting a deviation of said resonance frequency and controlling said resonance frequency to a predetermined frequency. --

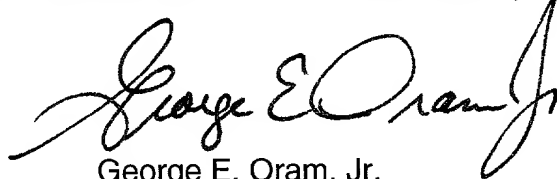
REMARKS

The above amendment to the claims have been made to correct the multiple dependency of the claims and to put the application in better condition for examination. No new matter has been added.

In the event that any fees are due in connection with this paper, please charge our Deposit Account No. 01-2300.

Respectfully submitted,

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What is claimed is:

1. An antenna device of an interrogator which constitutes an automatic identification system by exchanging information with an IC tag attached to an object to be identified by electromagnetic coupling, comprising:

an antenna element; and

a capacitor connected in series to said antenna element and having a variable capacitance to maintain a predetermined resonance frequency.

2. The antenna device according to claim 1, wherein said capacitance of said capacitor is made variable by switching a switch.

3. An antenna device of an interrogator which constitutes an automatic identification system by exchanging information with an IC tag attached to an object to be identified by electromagnetic coupling, comprising:

an antenna coil having taps which are switched from one to another to maintain a predetermined resonance frequency.

4. An antenna device of an interrogator which constitutes an automatic identification system by exchanging information with an IC tag attached to an object to be identified by electromagnetic coupling, comprising:

an antenna coil; and

an inductor connected in series to said antenna coil and having taps which are switched from one to another to maintain a predetermined resonance frequency.

5. The antenna device according to claim 3 or 4, wherein said taps are switched by switching a switch.
6. The antenna device according to claim 2 ~~or 3~~ wherein said switch is a semiconductor switch which is controlled by a control circuit for detecting a deviation of said resonance frequency and controlling said resonance frequency to a predetermined frequency.
7. An antenna device of an interrogator which constitutes an automatic identification system by exchanging information with an IC tag attached to an object to be identified by electromagnetic coupling, comprising:
- an antenna coil; and
 - a variable inductor, connected in series to said antenna coil, for maintaining a predetermined resonance frequency.
8. The antenna device according to claim 7, wherein said variable inductor is controlled by a control circuit for detecting a deviation of said resonance frequency and controlling said resonance frequency to a predetermined frequency.
9. The antenna device according to claim 1, wherein a predetermined communication distance is ensured by varying a drive voltage of said antenna device.